

**SECTION-BY-SECTION SUMMARY OF
H.R. 5358, THE SCIENCE AND MATHEMATICS EDUCATION
FOR COMPETITIVENESS ACT
AS REPORTED**

SEC. 1. SHORT TITLE

“Science and Mathematics Education for Competitiveness Act”

SEC. 2. FINDINGS

Finds that the National Science Foundation has made significant and valuable contributions to the improvement of K-12 and undergraduate science, technology, engineering, and mathematics education and that it should continue to carry out education programs.

SEC. 3. ROBERT NOYCE TEACHER SCHOLARSHIP PROGRAM

Amends Section 10 of *The National Science Foundation Authorization Act of 2002*, which established the Robert Noyce Teacher Scholarship Program. Under the Noyce Program, the National Science Foundation (NSF) provides grants to institutions of higher education to encourage top science, technology, engineering and mathematics (STEM) majors to become teachers. The grants are used both to develop programs to prepare students for teaching and to provide to students who commit to teach for two years at the elementary or secondary school level in return for each year of scholarship aid. H.R. 5358 amends the law by specifying some of the programs grantees must provide to prepare students for teaching, including providing field teaching experience, and by making those programs available to students beginning in their freshman year (even though the scholarships are still available only to juniors and seniors). Also amends the law to specify that both faculty from STEM departments and education faculty must be involved in the program. Also amends the law to increase the minimum scholarship from \$7,500 per year to \$10,000; to allow additional years of scholarship support for part-time students; to cap the post-graduation service requirement at four years; to extend stipend support for professionals in STEM fields returning to schools for a teaching degree to 16 months from one year to align the support with the length of a typical program; and to allow the Director to accept donations from the private sector to support scholarships, stipends, or internships associated with this program. Also amends the law to allow teaching service to occur in any local educational agency (rather than only in high-need areas), but to reduce the period of service obligation by one year for those scholarship recipients whose service is performed in a high-need local educational agency. Requires NSF, four years after the date of enactment, to transmit to Congress a report on whether participant in the program continue to teach after their service obligation is completed. Authorizes appropriations for the program of \$50,000,000 for fiscal year 2007, \$70,000,000 for fiscal year 2008, \$90,000,000 for fiscal year 2009, \$110,000,000 for fiscal year 2010, and \$130,000,000 for fiscal year 2011, and sets aside specific portions of those authorizations for the programmatic (as opposed to scholarship) portions of the Noyce Program.

SEC. 4. SCHOOL AND UNIVERSITY PARTNERSHIPS FOR SCIENCE AND MATHEMATICS EDUCATION

Amends Section 9 of *The National Science Foundation Authorization Act of 2002*, to strengthen the Math and Science Partnerships program at NSF, which provides grants to institutions of higher education (or to eligible nonprofit organizations) to partner with local educational agencies to improve elementary and secondary mathematics and science instruction. Amends the law to clarify that faculty from STEM departments must be the lead participants from the institutions of higher education and clarify that education faculty may participate in the Partnerships. Amends the law to explicitly include as allowable activities developing model induction programs and conducting training to teach Advanced Placement and International Baccalaureate science and mathematics courses. Also amends the law to explicitly allow teacher training activities to include the development and offering of master's degree programs for in-service mathematics and science teachers that will strengthen their subject area knowledge and pedagogical skills. Amends the law to require the Director of NSF to give priority to applications that include teacher training activities as the main focus of the proposal and to establish that the grant size should be between \$75,000 and \$2,000,000 per year. Amends the law to require the Director, within a year of the enactment of the Act, to transmit a report to Congress on which completed Math and Science Partnerships projects should be seen as models to be replicated on a more expansive basis at the State or national levels, and, within four years, to transmit a report to Congress summarizing the evaluations each Partnership is required to conduct of its projects and describing any changes to the overall program recommended as a result of these evaluations. Authorizes appropriations for the program of \$63,000,000 for fiscal year 2007, \$73,000,000 for fiscal year 2008, \$83,000,000 for fiscal year 2009, \$93,000,000 for fiscal year 2010, and \$103,000,000 for fiscal year 2011.

SEC. 5. SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS TALENT EXPANSION PROGRAM

Amends Section 8(7) of *The National Science Foundation Authorization Act of 2002*, which established at NSF the Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP), which provides grants to institutions of higher education to improve undergraduate education. Amends the law to authorize NSF, as part of STEP, to award grants on a competitive, merit-reviewed basis to institutions of higher education to create Centers to improve undergraduate education through the development and dissemination of undergraduate curriculum and teaching methods, and the development and dissemination of training programs for faculty and graduate students who teach undergraduates. Requires that grants for Centers be made jointly through the NSF Education and Human Resources Directorate and at least one research directorate for periods up to five years, with two possible extensions of no more than three years each. Also requires the Director of NSF, within 180 days, to transmit to Congress a report on how the Director is determining whether current STEP grant recipients are making satisfactory progress toward targets they have set for increasing the number of STEM majors at their institutions and what actions the Director has taken to ensure that funding is continued only to those making satisfactory progress. Authorizes appropriations for STEP of \$44,000,000 for fiscal year 2007, of which \$4,000,000 shall be for the Centers authorized by this Act; \$55,000,000 for fiscal year 2008, of which \$10,000,000 shall be for the Centers; \$60,000,000 for

each of the fiscal years 2009 through 2011, of which \$10,000,000 each year shall be for the Centers.

SEC. 6. INTEGRATIVE GRADUATE EDUCATION AND RESEARCH TRAINEESHIP PROGRAM

Requires that the Director allocate at least 1.5 percent of funds appropriated for Research and Related Activities to the Integrative Graduate Education and Research Traineeship (IGERT) Program. Requires that the Director coordinate with Federal agencies to expand the interdisciplinary nature of the program, and allows the Director to accept funds from those agencies to carry out the program. (The IGERT program awards grants to institutions of higher education to develop interdisciplinary graduate programs and to provide tuition and stipends for graduate students in those programs.)

SEC. 7. CENTERS FOR RESEARCH ON LEARNING AND EDUCATION IMPROVEMENT

Requires the Director to continue the program on Centers for Research on Learning and Education Improvement as established in section 11 of the *National Science Foundation Authorization Act of 2002*.

SEC. 8. UNDERGRADUATE EDUCATION PROGRAMS

Requires the Director to continue to carry out programs in undergraduate education, including those authorized in section 17 of the *National Science Foundation Authorization Act of 2002*. Funding for these programs shall increase as funding for the National Science Foundation grows.

SEC. 9. EVALUATION OF PROFESSIONAL SCIENCE MASTERS

Requires the Director to arrange for an assessment of the impact of Professional Science Master's (PSM) degree programs at a variety of institutions. Requires that the report be submitted to Congress within three years of the enactment of this Act and include information on the interdisciplinary nature of the degree, the employment and salary prospects of degree recipients compared with those of traditional science master's graduates, the extent to which PSM graduates continue their education, and the effectiveness of the degree at attracting populations traditionally underrepresented in science, technology, engineering, and math fields. (Professional Science Masters programs consist of two years of training in an emerging or interdisciplinary technological area. Many include internships and training in business and communications.)

SEC. 10. REPORT ON BROADER IMPACTS CRITERION

Requires the Director of NSF to submit to Congress within one year of the enactment of this Act a report that evaluates the results of the use of the broader impacts criterion by NSF. (NSF grant proposals are evaluated for their "intellectual merit" and "broader impact," which includes the benefits of the activity to society at large.) Requires the report to identify how NSF evaluates

proposals based on the broader impacts criterion, to categorize the types of broader impacts enumerated by grant applicants, to include any evaluations performed by NSF of the implementation of broader impacts aspects of research proposals, to describe which overarching national goals the broader impacts criterion is best suited to promote, and to describe what steps NSF should take to use the broader impacts criterion to improve undergraduate science, mathematics, and engineering education.

SEC. 11. STUDY ON LABORATORY EQUIPMENT DONATIONS FOR SCHOOLS

Requires the Director, within one year of the enactment of this Act, to transmit to Congress a report on the extent to which universities are donating used laboratory equipment to elementary and secondary schools and how appropriate donations can be encouraged.

SEC. 12. ASSESSMENTS OF NATIONAL SCIENCE FOUNDATION EDUCATION PROGRAMS.

Requires the Director, in conducting assessments of NSF education programs, to use assessment methods that allow Foundation programs to be compared to education programs supported by other Federal agencies.

SEC. 13. EDUCATION PROGRAMS AT THE DEPARTMENT OF ENERGY

Authorizes education programs at the Department of Energy, through the Office of Science, in fields related to the Office's mission, including activities such as offering scholarships or fellowships for study or research, research experiences for undergraduates, and summer institutes for improving teacher content knowledge in science and mathematics. Requires the Secretary of Energy to submit a report not later than one year after the enactment of this Act that includes an inventory of existing education programs at the Department and the civilian National Laboratories and requires independent evaluations of those programs to be conducted within four years of the enactment of this act. Requires the Department to include the results of evaluations of educational programs run by the civilian National Laboratories as a factor when setting performance and incentive fees for those National Laboratory management and operations contractors.

SEC. 14. DEFINITIONS

Defines "Institution of Higher Education" and "National Laboratory" for this Act.